

## REMARKS

### Amendments to the Specification

The Examiner is respectfully requested to examine claims 1 to 4, even though they were provisionally withdrawn in the response to the Restriction Requirement. Both claims 1 and 5 are directed to the same subject matter, but claim 1 recites more detail than claim 5 regarding the mechanism of sintering during the process.

Claim 5 has been amended to more clearly and concisely recite the present invention. The phrase "the lower of" has been removed to avoid ambiguity. It is clear from the disclosure, see for example page 17, lines 5 to 14 that the temperature is held in a region in which the material displays viscous flow, which by definition, is above both the "glass softening temperature" and the "glass transition temperature", see definitions on page 16. It is noted that it is well known to those skilled in the art that various inorganic materials may have one, or both of the "glass softening temperature" and the "glass transition temperature", which may be at separate temperatures, or they may be at the same temperature and it is well known that viscous flow is achieved above both these temperatures.

Similarly, the phrase "or equal to" in claim 5, paragraph c) has been removed to avoid confusion and to be consistent with the disclosure which discloses a first temperature in a range where there is viscous flow but no crystallization, in other words it must be below the "crystallization temperature".

The phrase "period of time" inserted in the step (d) of claim 1 is supported on page 21, line 19.

Claim 1 has been amended to specifically refer to the limitation also in claim 5 that the temperature the material is held at is higher than the glass transition temperature and the glass softening temperature. It is noted that as discussed with respect to the amendment in claim 5, the feature of achieving the:

"effective viscosity to develop significant sinter necks between adjacent powder particles by a viscous flow sintering mechanism"

recited in claim 1, lines 3-15 of the amended claim, can only be achieved if the first temperature the material is held at is higher than the glass transition temperature and glass softening temperature, as disclosed in the description.

Claim 8 has been amended to be consistent with part of the sintering recipe given on page 27, lines 9 to 14, particularly lines 11 to 13.

Claim 30 has been amended to include particles in the size range from 45 to 250 microns which is supported by the size ranges given on page 35, lines 19 and 20.

New claim 81 which depends from claim 31 has been added to recite the size ranges given on page 37, line 5 and line 11 on page 37 for the finer particles.

Claim 31, which the Examiner has deemed as allowable, has been re-written in independent form and has been amended to avoid any ambiguity and antecedent problems. The second paragraph in the original dependent claim is inconsistent with original claim 1, since it recites "a sintering temperature and for a time being chosen to be **above the glass softening or glass transition temperature** but ...". Applicants submit that the amendments to claims 5 and 31 now properly reconcile the two claims and that they are now clear and unambiguous.

The preambles of some of dependent claims have been amended to make them more consistent.

The Summary of Invention in the description has been amended to include the paraphrases of the amended independent claims.

Applicants respectfully submit the amendments made herein are to more clearly and concisely recite the present invention, to avoid potential antecedent problems and to avoid inconsistencies, and that no new matter has been added by these amendments.

#### **Patentability of Claims over Cited References**

The Applicant has carefully reviewed the rejections raised in the Office Action dated May 14, 2007. Claims 5 to 46 are currently pending. The Examiner has indicated that claims 28, 30-34, 40 and 43 are allowable if rewritten to incorporate their base claims.

Claims 5 to 14, and 29 have been rejected under 35 U.S.C. § 10b(b) as being anticipated by the reference Filiaggi et al. Reconsideration of the grounds for this anticipation rejection is respectfully solicited for the following reasons. The arguments herebelow with respect to allowability of claim 5 over Filiaggi et al. apply equally to amended claims 1 and 2 which the Examiner is requested to examine.

It is submitted that Filiaggi does not disclose the method recited in claim 5. Specifically, Filiaggi is mentioned in the Background, on page 4, lines 10 and 11 and is mentioned in the context that porous CPP structures have been found by the inventors to be biodegradable and are useful for anchoring soft connective tissues to bone.

The method recited in present claim 5 differs from the method disclosed on page 172, the first paragraph under the heading "Materials and Methods" of Filiaggi in the following way.

Present claim 5, in subparagraph c) recites:

**"c) pre-sintering the packed amorphous inorganic powder for an appropriate period of time at a temperature greater than the glass transition temperature and the glass softening temperature and less than the crystallization temperature to produce a pre-sintered amorphous inorganic body;"**

Applicants respectfully submit this feature is not disclosed or even inferable from Filiaggi. The process recited in claim 5 requires that the samples are held for an appropriate time at a temperature above the glass transition temperature and the glass softening temperature and below the crystallization temperature. This stage-1 sinter treatment allows for substantial interparticle sinter neck formation during this hold time. In contrast, Filiaggi et al do not specify the need for a constant temperature hold (stage-1 treatment) prior to increasing the temperature to the final stage-2 sinter treatment that allows crystallization of the amorphous CPP. The disclosure of the method in Filiaggi starts heating at about 500 degrees C at the given rate of increase up to 950 degrees C at which temperature it is held for 2 hours. There is no disclosure whatever of holding the temperature steady for any period of time between the glass transition temperature/glass softening temperature and the crystallization temperature.

The surprising result of being able to produce the open pore structures, with reliable strength is achieved by holding at a temperature for an appropriate

time above both the glass transition temperature and glass softening temperature but below the crystallization temperature, which is in the regime where viscous flow occurs and rapid sinter neck formation occurs. This significant and surprising result achieved by the methodology of claim 5 is disclosed on page 17, lines 4 to 14. When the Filiaggi paper was published by the present Applicant (Robert Pilliar), the method of present claim 5 had not been discovered.

In view of the foregoing, Applicants respectfully request withdrawal of the 102(b) rejection.

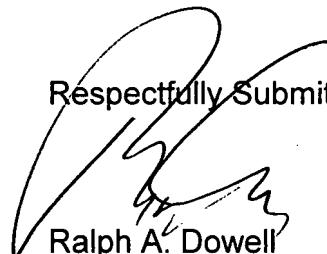
Claims 15 to 27, 35-39, 41-42 and 44 to 46 have been rejected under 35 U.S.C. § 10a(a) as being obvious in view of the combination of Filiaggi et al. and Kandel et al. (US Patent No. 6,077,989).

In view of the comments above regarding the fact that the subject matter of claims 1 and 5 is not taught in Filiaggi et al. Applicant respectfully requests withdrawal of this rejection. Notwithstanding, Kandel, as with Filiaggi does not disclose or even suggest the method of claim 15.

Kandel describes the formation of a biphasic CPP-soft tissue construct that utilizes a porous CPP structure to allow mechanical attachment of in vitro-formed soft tissue (e.g. cartilage) to the CPP. There is no specification of a 2-step sintering process to form the porous CPP in Kandel et al.

An earnest effort has been made to place this application in condition for allowance which action is respectfully solicited.

Should the Examiner have any questions regarding the allowability of the claims with respect to the art, it would be appreciated if the Examiner would contact the undersigned attorney-of-record at the telephone number shown below for further expediting the prosecution of the application.



Respectfully Submitted,

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